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TO: Each Supervisor

FROM: Jonathan E. Fielding, M.D., M.P.H.
Director of Public Health and Health Officer

Donald L. Wolfe
Director of Public Works

Stan Wisniewski
Director of Beaches and Harbors

SUBJECT: **BEACH WATER QUALITY**

On May 30, 2006, the Board approved a motion by Supervisors Yaroslavsky and Knabe, instructing the Directors of Health Services, Public Works, and Beaches and Harbors, under the leadership of the Director of Public Health, to report back with recommendations for improving the evaluation and communication of beach health risk factors to the public.

This is to provide you with our recommendations for specific actions for improved communication with the public about beach water quality and an aggressive approach to find the sources of pollution for the northern part of the Santa Monica Bay.

Communications with the Public

Working together, the three departments are taking the following actions:

- Public Health has expanded its beach water quality report on www.lapublichealth.org to include all beaches where laboratory tests of water quality are done. The information includes both current status and a grade reflecting water conditions over the past 30 days.

- Signs warning the public of health hazards from swimming near storm drain outfalls will continue to be posted at all existing storm drain posting sites and expanded to all beaches, with storm drains or water courses, for which testing is performed. Signs will be posted at beach access points and also on the beach where feasible.

- Beaches with consistently low grades will be posted with signs warning the public that the water quality at these beaches is poor and that swimming may increase health risks. For beaches in Malibu, where private homes are directly along the beach, leaflets will be distributed door to door, with information about water quality and warning of swimming near storm drain outfalls.

Testing for Water Quality

For beaches where water samples were previously taken 50 yards from a storm drain, we will take samples at both the point of storm drain outflow and 50 yards away, to provide as much useful information as possible about risks of swimming near storm drain outfalls and to maintain continuity with previous testing results.

Identification of Sources of Pollution

The beaches along the northern part of the Santa Monica Bay generally have poorer water quality than those to the south. Possible sources of pollution include the widespread use of septic systems (including homes along the beach), domestic animal waste (dogs, horses), and wild animal waste. The southern beaches have benefited from storm water diversion projects and the areas which drain to them are mostly served by sewers.

We propose establishing a North Santa Monica Bay Source Identification Task Force, composed of staff from Public Works and Public Health, working with the City of Malibu and other agencies, to begin the process of identifying the sources of beach water pollution. In the initial year, the team will focus on Ramirez Canyon and Escondido Creek. Working through the Southern California Coastal Water Research Project (SCCWRP) we will take samples in each waterway and evaluate the water at each point to identify pollution sources. When pollution sources are identified, they will be referred to the Regional Water Quality Board for remediation. A detailed description is attached.

Attached are responses to each section of the motion.

After the Board presentation, we will circulate this report to other interested cities and organizations and provide a follow-up report of any comments and a status report on implementation actions by October 31, 2006. In the meantime, if you have any questions or need additional information, please let us know.

JEF:lm
607:006

c: Chief Administrative Officer
County Counsel
Executive Officer, Board of Supervisors
Fire Chief
Director of Health Services

BEACH WATER QUALITY
September 12, 2006

On May 30,2006, the Board approved a motion by Supervisors Yaroslavsky and Knabe, instructing the Directors of Health Services, Public Works, and Beaches and Harbors, under the leadership of the Director of Public Health, and working with other water quality testing agencies, County Beach Commission and Lifeguards, beach cities' representatives and environmental groups, including Heal the Bay, to report back with recommendations for improving the evaluation and communication of beach health risk factors to the public.

This report contains the detailed responses to each of the sections of the motion. In preparing this report, the departments of Public Health, Public Works and Beaches and Harbors, have communicated with the other water quality testing agencies (City of Los Angeles and County Sanitation Districts), the County Fire Department's Lifeguards, and representatives of the beach cities. Written comments and recommendations from Heal the Bay have been reviewed . Within the next 30 days the departments will formally transmit the report and recommendations to each of the beach cities and the Beach Commission for comments.

1. An explanation of the different "grading" methodologies used currently by the DHS Environmental Health Division, Heal the Bay, and any other organizations; with recommendations as needed to improve the publics understanding of beach health risk factors and conditions.

Summary:

The Los Angeles County Department of Public Health (DPH) Environmental Health (EH) publishes both grades and current conditions for each beach. The data published now include both the AB411 beaches and those sampled for the TMDL. The current conditions are based on the most current laboratory results. DPH calculates grades based on a 30-day average, including the most current data. The website is updated twice a day. Along with the grades for each beach location, DPH also posts current advisories and closure information. DPH also records a telephone hotline with current beach advisory and closure information. DPH's Beach Advisory website has 1,400 visitors per week.

We continue to recommend utilization of the DPH grading and posting methodologies because 1) it is simple to understand, 2)the most current information is used, including additional re-sampling data used to re-open posted beaches, and 3) the grades take into account high levels of bacteria in any of the three indicator bacteria tests. The website is updated as the data come in, up to two times per day.

Background:

According to the California Health and Safety Code, DPH is responsible for monitoring ocean water along the Los Angeles County coastline and taking appropriate action when water quality criteria are not met or an incident such as a sewage spill occurs. Beaches are posted with no-swimming warning signs any time State ocean water quality standards are not met and beaches are closed whenever there is a known sewage or chemical spill which affect ocean waters. The beaches covered by the State code are known as AB411 beaches and are those which have flowing storm drains and 50,000 visitors per year. To implement AB 411 requirements in Los Angeles County, three agencies collect and analyze ocean water from 69 locations along the coast from San Pedro to the Ventura County line. (The City of Long Beach has its own health department and does its own monitoring). Samples at 31 ocean water sites are collected by DPH, 30 sites are sampled by the City of Los Angeles Environmental Monitoring Division (EMD), and 8 sample sites are collected by the Los Angeles County Sanitation Districts (LACSD).

These agencies test for three bacteria found in ocean water known as "Indicator Bacteria". The three bacteria are total coliform, fecal coliform, and enterococcus. Concentrations above certain levels for these three indicator bacteria can be an "indication" that the water has fecal contamination, which may or may not be human in origin. Beaches are posted with warning signs when any of the indicator bacteria levels exceed State ocean water quality standards. Beaches remain posted with warning signs until tests indicate that bacteria levels meet State standards. Additionally, beaches are posted with closure signs when there is a known chemical or sewage spill that enters ocean waters.

Heal the Bay:

Heal the Bay has been issuing its Beach Report Card for Los Angeles County beaches for 16 years. In recent years the Beach Report Card has expanded and now issues grades for every coastal county in California. Heal the Bay uses data collected by public agencies to calculate its grades.

For Los Angeles County, Heal the Bay uses data collected by all three sampling agencies to calculate its grades. The Heal the Bay grades are based on a 28-day rolling average. The 28 day average is calculated and compared against the state standard. A point value is assigned based on how many standard deviations away from the state standard the value is. The point value will increase if multiple indicators exceed state standards. Also, Heal the Bay weights recent data more heavily than older data. A point value assigned is subtracted from 100 and a grade is assigned based on that number.

Department of Public Health:

To calculate its grades, DPH also uses the data from the samples collected by DPH, EMD and LACSD. DPH calculates its grades by using a simple formula. The average for the past 30 days of data for each sampling station is calculated for total coliform, fecal coliform or E. coli and enterococcus bacteria. Sampling data that are influenced by rainfall are excluded, because counts are expected to be high and a rain advisory has been issued for all beaches.

The 30 day average is applied to a set formula to arrive at a grade for each of the three types of bacteria. The worst of the three grades is used as the assigned grade. Studies have shown that bacterial levels can fluctuate significantly depending on recent contamination, so that assigning equal weights to all data in the 30-day period provides a fair picture of beach water quality, particularly since a beach is posted if bacteria levels exceed standards.

DPH re-calculates its grades twice daily using the most recent sample data and posts the grades on its website. The website also gives information on the latest beach advisories and closures.

2. *A methodology for ensuring consistent testing and reporting of health risk factors at beaches where the monitoring point has been moved to comply with TMDL requirements, for example by monitoring at both the former and current test locations.*

In order to assure consistency with historical data and also to provide more information for the public, DPH will now sample both at the entrance of a storm drain into the ocean (point zero) and 50 yards away.

Since 2004, to achieve the Santa Monica Bay Beaches bacteria Total Maximum Daily Load (TMDL) levels adopted by the Regional Water Quality Control Board, the cities whose watersheds empty into the Santa Monica Bay have been measuring the bacterial levels in discharging storm drains, creeks, and rivers. The measurements must be from samples taken at the point where the discharge meets the ocean, known as point zero. DPH was requested by the Regional Board and several beach cities to move some of its sampling locations so that samples were taken at point zero of flowing storm drains. In the past, when a storm drain was flowing, DPH sampled at 50 yards away from the flow (usually south). From

experience, DPH knew that the bacteria levels would be high at point zero and since the storm drain was posted for no swimming, determined that the most relevant sample for swimming would be taken at 50 yards away.

On April 1, 2004, DPH moved its sample locations to point zero for flowing storm drains, and ceased testing 50 yards away. Since then, the number of warnings issued has gone up. These warnings and raw data of bacteria levels are reported to the state. DPH should have continued to sample at 50 yards away, when it began sampling at point zero. Starting May 30, 2006, DPH has resumed sampling at 50 yards away from flowing storm drains, in addition to point zero. This will assure consistency with historical data and also provide more information about the quality of the water where people are swimming.

3. Recommendations on how to more effectively communicate to the public the necessity of avoiding storm drain and stream outlets at the beaches.

Currently, beach lifeguards post warning signs daily at flowing storm drains on AB 411 beaches. The sign warns that swimming near the storm drain may have health risks. The lifeguards will continue to post these warning signs daily and in addition, permanent signs will be placed at storm drains which flow most of the time. Department of Beaches and Harbors has agreed that additional warning signs about swimming near storm drains can be placed on free-standing signs located at the edge of the beach, where people enter from parking lots. In addition, DPH will post signs at entrances/access points to non-AB 411 beaches to warn about swimming near storm drains.

DPH has the responsibility to post a beach with warning signs when bacterial levels exceed state standards or when there is a known chemical or sewage spill. DPH has a long-standing arrangement with the Los Angeles County Lifeguards, by which the lifeguards will post or remove signs. DPH sends a notification to the lifeguards twice daily directing them which signs to post or remove at the various locations. In addition to posting signs as directed on the notifications, lifeguards also post warning signs daily at all flowing storm drains. A written notice to "Post all flowing storm drains" is on the twice-daily notifications that DPH sends to the lifeguards. DPH will permanently post storm drains that flow year-round or most of the year. The signs will notify and/or warn the public of the danger of water contact near flowing storm drains, creeks, and rivers.

EH has an educational program that proactively goes out to schools, businesses, and fairs to educate the public on environmental health issues. EH mostly focuses on issues of food and housing, but will start to include information on ocean water quality.

4. Recommendations on how to effectively and appropriately communicate health risk factors at little-used beaches not covered by AB 411 (the State law that requires publication of data on beaches used by 50,000 people a summer or more); including how to communicate such information to local cities, and to adjacent property owners where the "public" beach stops at the mean high tide line.

DPH will post signs at the entrance or access points to non-AB 411 beaches, warning to not swim near any flowing storm drains. In addition, if the beach is one which has consistently poor water quality, the sign will warn the public of the risks of swimming at that beach. For difficult-to-post beaches, DPH will distribute informational leaflets to occupants of homes which are directly on beaches which have flowing storm drains or consistently poor water quality. This will be completed by October 31, 2006 and repeated in the spring of 2007.

DPH has already added the non-AB 411 beaches to its public notification website and has started grading these beaches. DPH will create educational hand outs and presentations for Environmental Health's consultative section to give to the public. DPH will also make these hand outs available at locations such as local city halls and libraries where the public can access them.

5. Recommendations on how to utilize the resources of the Department of Public Health, to better focus on and proactively seek to improve the health of the beach-going public.

The Departments of Public Works and Public Health are establishing a Source Identification Task Force, composed of staff from Public Works and Public Health, working with the City of Malibu, to begin the process of identifying the sources of beach water pollution. The team will begin with Escondido Creek and Ramirez Canyon in FY 06/07, going up each waterway, taking samples and evaluating the water at each point to determine where pollution sources are. When pollution sources are identified, they will be referred to the Regional Water Quality Board for remediation. A detailed description is attached.

An overview of this innovative project is attached.

6. *A report on the status of Public Works' efforts to improve beach water quality through capital improvements, "best management practices" and public education programs, and on the status of efforts to develop and implement a stable and long-term funding mechanism for these purposes.*

For several years, Public Works (acting on behalf of the Los Angeles County Flood Control District (District)) has been implementing beach water quality mitigation measures that include structural and nonstructural Best Management Practices (BMPs). The structural BMPs implemented include the construction of 19 low-flow diversions and installation of partial and full capture trash reduction BMPs in the Ballona Creek and Los Angeles River Watersheds. A low-flow diversion is a structural BMP that collects dry-weather urban runoff and pumps it to sanitary sewer systems for treatment. Partial capture trash devices are baskets or screens placed inside or covering the entrance of catch basins that prevent a portion of the trash flow from entering the storm drain, and full capture BMPs are devices designed to capture all trash from small storm events. The non-structural BMPs implemented are BMP activities performed under the Municipal Stormwater Permit. One of the most successful Permit programs is their efforts to conduct extensive public education to limit the impact of human-related bacteria sources at the beaches.

The District has also committed to a number of pilot projects designed to provide multiple benefits for the general public while incorporating elements that enhance the surrounding environment and habitat. These projects differ from traditional public works projects in that they were developed in collaboration with a variety of stakeholders and environmental groups. This collaboration has ensured that the benefits of each project are maximized. These benefits include the improvement of water quality, flood protection, groundwater recharge, incorporation of natural vegetation, habitat restoration, and recreational activities, such as bird watching or sports activities as well as many others.

In addition, the District continues to explore the causes of high bacteria levels at our beaches and supports the development of technologies that enable rapid and accurate assessments of pollutants that pose a risk to human and marine life.

These multiple benefit and water quality improvement projects and programs will limit the impact of urban runoff pollution throughout each watershed in the Los Angeles Basin and ensure compliance with existing and future regulatory requirements. The cost to implement these projects and programs is estimated to reach hundreds of millions of dollars per year. These projects are currently funded by the District Benefit Assessment and grant funding opportunities. These sources cannot fund all the

compliance activities necessary to meet water quality regulations. Therefore, identifying a diverse, stable, and long-term revenue source to finance these projects to address regulations is a critical priority for the County. Public Works continues to work with the Los Angeles Regional Watershed Infrastructure Funding Workgroup to develop a plan that would describe the types of projects and programs that would be implemented by approval of a stable and long-term funding measure. These projects and programs would be designed to address surface water quality concerns. The foundation for this plan will come from the Integrated Regional Water Management Plan (IRWMP) that is currently under development in the County.

North Santa Monica Bay Source Identification Task Force

Mission: To identify and assess public health risks at recreational waters in the North Santa Monica Bay caused by anthropogenic sources through proactive and scientifically defensible methods.

Goals:

1. Utilize local expertise to identify and implement source identification protocols at high priority watersheds in the North Santa Monica Bay.

2. Develop a systematic procedure to accurately identify and assess the impacts of anthropogenic sources in recreational waters.

Strategy: The Task Force will utilize an existing partnership with the Southern California Coastal Water Research Project (SCCWRP) to implement currently available, although experimental, water quality monitoring techniques at the highest priority watersheds in the North Santa Monica Bay. SCCWRP will work with the Task Force and Special Advisors to:

1. Develop monitoring plans;
2. Oversee water quality sampling and analysis;
3. Analyze monitoring data; and
4. Provide recommendations to the Task Force.

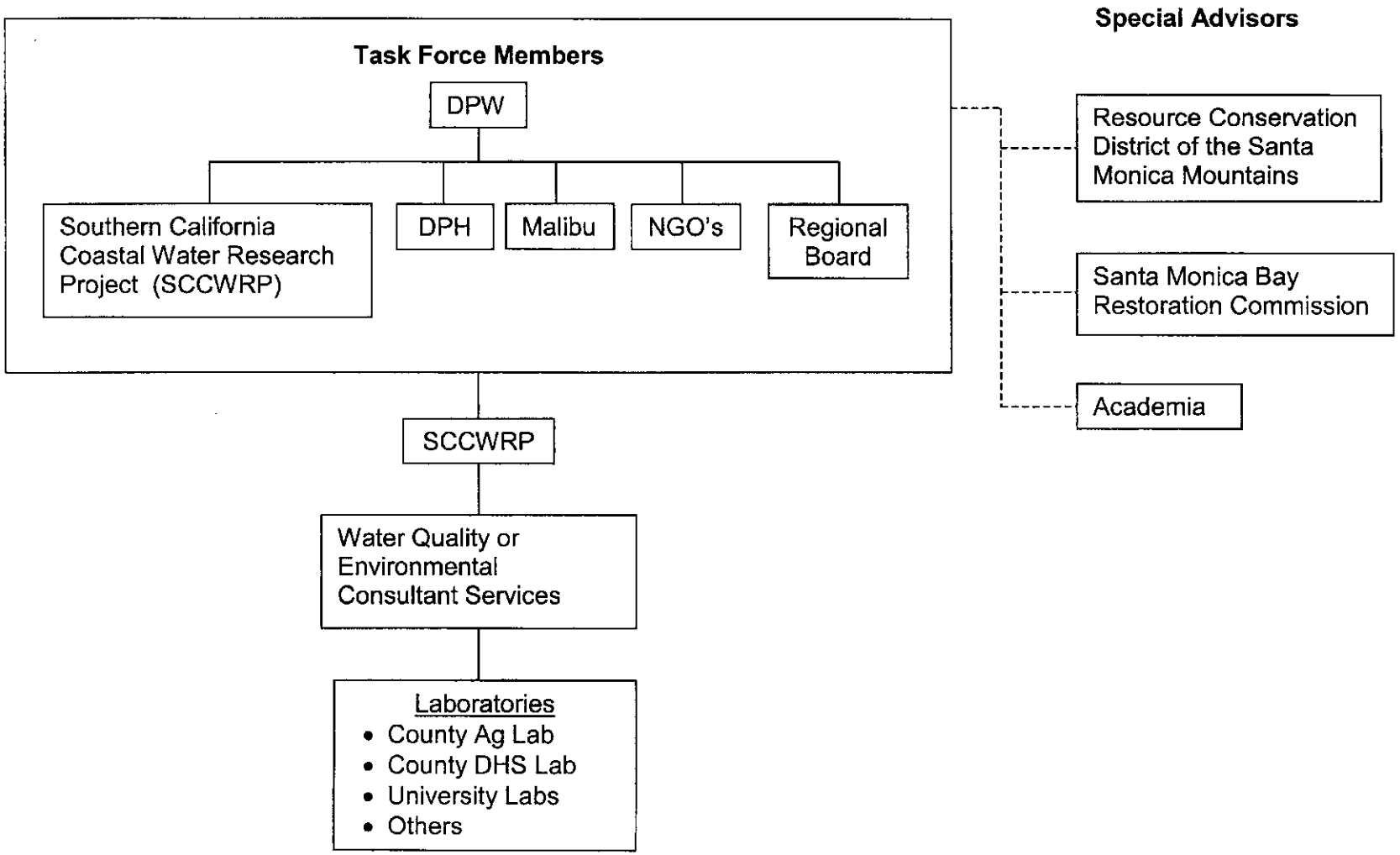
The source investigation efforts should follow the guidelines of the two phase approach outlined in the table below until the sources are identified:

Table 1: Two-Phase Source Investigation Approach

Monitoring Effort		**Purpose**	**Types of Monitoring**
Phase 1: Source Identification	Human Indicators at Watershed Outlet & Wave-wash	Determine Presence of Anthropogenic Contributions	• Bacteria Indicators • Enterovirus (QTCPCR) • Bacteroids Sp. (PCR) • Others (i.e. caffeine, optical brighteners, surfactants, etc.)
Phase 2: Source Tracking	Human Indicators Throughout Watershed	Isolate Upstream Sources of Anthropogenic Contributions	• Flow Rate • Bacteria Indicators • Enterovirus (QTCPCR) • Bacteroids Sp. (PCR) • Others (i.e. caffeine, optical brighteners, surfactants, etc.)

North Santa Monica Bay Source Identification Task Force

Structure:



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North Santa Monica Bay Source Identification Task Force

Plan of Action:

Administrative Initiation

a. Form Task Force and Outline Responsibilities
b. Partner with SCCWRP
c. Communicate with Special Advisors
d. Select Monitoring Analyses to Identify Anthropogenic Sources

Phase 1

1-A. Source Identification at Priority Watershed Outlet

a. Develop Monitoring Plan
b. Conduct Monitoring, Analyze Data, and Report to Task Force

1-B. Characterize Upstream Watershed

a. Field Verification of Potential Monitoring Sites
b. Field Reconnaissance for Potential Sources

Phase 2

2. Source Tracking at Upstream Watershed Sites

a. Develop Monitoring Plan
b. Conduct Monitoring, Analyze Data, and Report to Task Force
c. Modify Monitoring Plan to Isolate Anthropogenic Sources

3. Prepare Report of Activities, Findings, and Recommendations

4. Report Findings to Regional Water Quality Control Board

5. Initiate Remediation Efforts for Anthropogenic Sources

6. Repeat for Next Priority Watershed

North Santa Monica Bay
Source Identification Draft Scope Items

Task 1-A: Initiate *Phase 1: Source Identification* at the storm drain outlet and wave-wash of the Ramirez Canyon and Escondido Canyon subwatersheds in the North Santa Monica Bay.

Objective: To determine if the outlet of the subwatershed contains pollutants specific to anthropogenic sources.

Activities:

- Develop a monitoring plan.
  - Review historic data
  - Sampling location (GPS), frequency, and duration.
  - Sampling procedures and protocol.
  - Analysis methodologies.
  - Quality assurance protocol.
- Coordinate with the appropriate laboratories.
- Collect water quality samples.
- Analyze water quality data.
- Analyze success of various anthropogenic indicators for Source Identification.
- Develop a summary of the monitoring results.
- Provide a fully justified recommendation to the Task Force.

Task 1-B: Conduct all field work necessary to verify the preliminary upstream monitoring sites are viable monitoring locations for *Phase 2: Source Tracking* and identify sources overlooked by preliminary analyses.

Objective: To determine the feasibility of the preliminary *Phase 2* monitoring locations and identify anthropogenic sources.

Activities:

- Visit proposed monitoring locations to verify:
  - Exact location (GPS);
  - Legal accessibility; and
  - Presence of dry-weather runoff.
- Secure access to private sites where necessary through voluntary agreement or use of administrative warrants
- Develop flow measurement methodology for each site.
- Perform general field reconnaissance along the stream (as legally viable) to identify any anthropogenic sources.
- Provide a summary of findings to the Task Force.

Task 2: Assuming pollutants specific to anthropogenic sources are found at a frequency justifying upstream monitoring efforts, initiate *Phase 2:Source Tracking* at locations within the subwatersheds verified in Task 1-B and at the outlet location monitored in Task 1-A.

North Santa Monica Bay
Source Identification Draft Scope Items

Objective: To isolate areas within the watershed contributing pollutants specific to anthropogenic sources.

Activities:

- Develop a monitoring plan.
  - Sampling location, frequency, and duration.
  - Sampling procedures and protocol.
  - Quality assurance protocol.
- Organize sampling team.
- Coordinate with the appropriate laboratories.
- Collect water quality samples.
- Analyze water quality data.
- Modify sampling locations to isolate anthropogenic sources.
- Submit modified monitoring plan to Task Force for approval.
- Provide a summary of the monitoring results to the Task Force.

Task 3: Create a Report outlining all activities, findings, and recommendations.

Objective: To summarize source identification efforts in the Ramirez Canyon and Escondido Canyon subwatersheds.

Activities:

- Submit Draft Report to Task Force for comment.
- Incorporate comments and submit Final Report to Task Force.